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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/801,843	03/16/2004	Michael Francis Xavier Gigliotti JR.	130445-1	3108

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EXAMINER
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KOEHLER, ROBERT R

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/801,843

Applicant(s)

GIGLIOTTI ET AL.

Examiner

Robert R. Koehler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-79 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 20-34, 36-46 and 48-79 is/are allowed.
- 6) ☒ Claim(s) 1, 9-13 and 16 is/are rejected.
- 7) ☒ Claim(s) 2-8, 14, 15, 17-19, 35 and 47 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

RRK.  
8-7-05

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 06172004; 05192005.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION*****Specification***

**1.** The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 10, the subject matter of "the shape memory alloy comprises a composition selected to exhibit an austenite phase at an environmental temperature in which the turbine engine component is disposed or operates and a martensite phase at about a temperature lower than the environmental temperature or operating temperature" cannot be found in the specification. See paragraphs [0027] on page 7 to [0033] on page 10.

**2.** The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 11, the subject matter of "the shape memory alloy comprises a composition selected to exhibit a superelastic phase at an environmental temperature in which the turbine engine component is disposed or operates and a martensite phase at about a temperature lower than the environmental temperature or operating temperature" cannot be found in the specification. See paragraphs [0027] on page 7 to [0033] on page 10.

**3.** The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: In claim 12, the subject matter of "the shape memory alloy comprises a composition selected to exhibit a martensitic phase at an environmental temperature in which the turbine engine component is disposed or operated" cannot be found in the specification. See paragraphs [0027] on page 7 to [0033] on page 10.

***Claim Objections***

**1.** Claim 35 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the

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claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 35 is dependent from claim 32, but the subject matter of claim 32 does not include a composite that comprises alternating layers of the shape memory alloy and a metallic or a ceramic layer. Note that claim 32 refers to a particulate phase within the composite. The Examiner believes that claim 35, directed to a "ceramic layer," should be dependent from claim 33; note claim 34 which refers to "the metallic layer" of the claimed "alternating layers" in claim 33. Also, see paragraph [0035] on pages 10 and 11.

2. Claim 47 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 47 is dependent from claim 43, but the subject matter of claim 43 does not include a composite having a component of a shape memory alloy. The Examiner believes that claim 47 should be dependent from claim 44.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 9 to 13, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by WIPO international application WO 99/66102 (WO '102).

WO '102 discloses the usage of nickel-titanium intermetallic compounds as coatings on austenitic steel substrates. The NiTi compounds possess excellent cavitation strength and good erosion resistance in various environments. According to WO '102, the NiTi compounds can be plated onto industrial equipment such as water turbine blades. Also, WO '102 states that NiTi

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compounds have pseudoelastic properties that vary according to the exact composition, microstructure, and temperature of the compound.

***Allowable Subject Matter***

Claims 20 to 34, 36 to 46, and 48 to 79 are allowed.

Claims 2 to 8, 14, 15, and 17 to 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art search has not produced any references which teach, suggest, or disclose applicants' claimed methods of manufacturing a multi-layer erosion resistant protective structure on a turbine component comprising the steps of affixing a diffusion-controlling layer on a region of the turbine component and affixing a shape memory alloy on the diffusion-controlling layer. Also, the prior art search has not produced any references which teach, suggest, or disclose applicants' claimed turbine engine component comprising a substrate, a diffusion-controlling layer affixed to the substrate, and an erosion resistant protective structure affixed to the diffusion-controlling layer, wherein the erosion resistant protective structure comprises a shape memory alloy. Also, the prior art does not teach, suggest, or disclose applicants' claimed insert for repairing a turbine component comprising a substrate that has been dimensioned to be inserted into a recess formed in a turbine component and an erosion resistant protective structure formed on a surface of the substrate (insert), wherein the erosion resistant protective structure comprises a shape memory alloy.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Robert Koehler whose telephone number is (571) 272-1536.

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The Examiner can normally be reached on Tuesday to Friday from 9:30 AM to 7:00 PM. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on **(571) 272-1535**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).



**ROBERT R. KOEHLER**  
**PRIMARY EXAMINER**

**Art Unit 1775**  
**August 7, 2005**